

Switchgear

CURRENT-LIMITING FUSE UNITS TYPES EJ-2 AND EJO-2 FOR MOTOR CIRCUITS

A Type EJ-2 fuse unit (for indoor use), or a Type EJO-2 fuse unit (for indoor or outdoor use), consists of a Fiberglass fuse tube having metal ferrules at each end, and contains current-responsive elements surrounded by a granular quartz filler.

APPLICATION

Type EJ-2 and EJO-2 fuse units are intended for short circuit protection of individual motors.

Protection of the motor against overcurrents due to starting, plugging, stalling and similar conditions must be provided by a separate contactor, or other switching means, and associated relays. The use of the fuse is thus confined economically to the high short circuit currents where its speed and high interrupting capacity are required. For detailed application data, and also for time-current and current-limiting curves, refer to the nearest General Electric Sales Office.

For any given application, the voltage rating of the fuse units should be that for which the line-to-line circuit voltage will be less than the maximum

Fig. 1 (8021291)

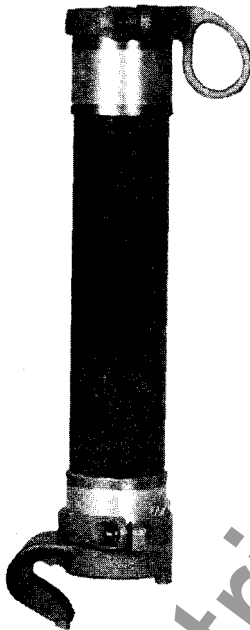


Fig. 1 Type EJ-2 Fuse Unit Size D Assembled With Fittings For Type EK-3D Fuse Disconnecting Switch

When the fuse unit functions, the arc resulting from the melting of the current-responsive elements is cooled by the adjacent filler and extinguished, without any expulsion of gases or material from the tube. The maximum current passing through the fuse before the arc is extinguished is limited to a value considerably lower than the maximum short-circuit current usually available in the circuit.

Fig. 2 (8021292)

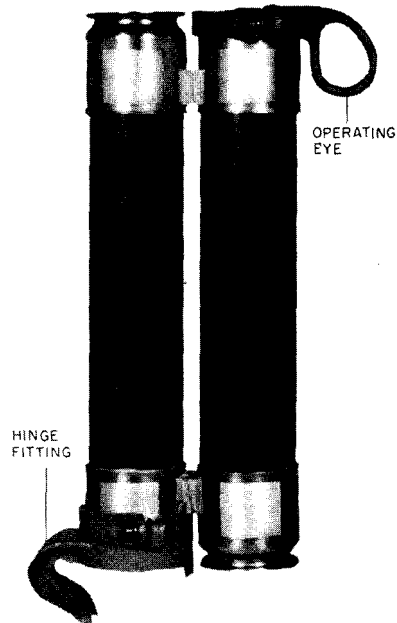


Fig. 2 Type EJ-2 Size DD Assembled With Fittings For Type EK-3DD Fuse Disconnecting Switch

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design voltage rating of the fuse unit but greater than the maximum design voltage rating of the next lower voltage fuse unit.

Fuse units rated "60 cycles" may be used on frequencies of either 50 or 60 cycles. Those fuse units rated "25/60 cycles" may be used on systems from 25 to 50 cycle frequency.

RATINGS

"Current designations" are used to distinguish one size of fuse unit from another in the same voltage rating. Ampere ratings are avoided because the fuse selection is determined by the application

requirements, involving both the continuous motor full load current, and the short time overloads, as at starting, plugging, etc. Available sizes are:

Single Tube	Double Tube
2R	18R
3R	24R
4R	
6R	
9R	
12R	

Nominal voltage ratings are 2400 and 4800 with corresponding maximum design voltages of 2750 and 5500 respectively.

INSTALLATION

Suitable fuse supports are required to use the fuse units. With the Type EK-3 and EKO-3 fuse disconnecting switches, fittings for the fuse unit are furnished to make it suitable for use as a disconnecting blade. To attach these fittings to the fuse unit, loosen the clamping straps and slide the

fittings onto the ferrules of the fuse unit, as shown in Figs. 1 and 2, and clamp in place. The hinge fitting should be located on the end of the fuse unit containing the indicating target, for ease of viewing from below.

OPERATION

When a fuse unit functions to interrupt the circuit, it should be replaced by a complete new unit. Always use a fuse tongs for handling unless means are provided for disconnecting the fuse mounting from all sources of power, and grounding it.

If the fuse units are mounted in fuse disconnecting switches, the fittings should be removed from blown units and transferred to replacing units. The time required to replace blown fuse units in disconnecting switches may be considerably shortened if spare fuse units with fittings in place are kept at hand at each installation.

The indicating target operates when the fuse unit functions, projecting outward as shown in Fig. 3. Its operation is produced by a separate mechanism within the fuse and is not due to any pressure developed by the main fuse elements in functioning.

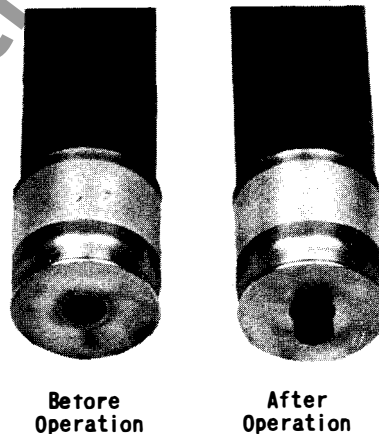


Fig. 3 Indicating Targets of Size D Fuse Units

Fig. 3 (8021290)

REPLACEMENTS

Blown fuse units may be returned to the factory, when ordering replacements, if the tubes are in good condition. Refer to the nearest General

Electric Sales Office for details of the procedure to be followed.

INSTRUCTIONS FOR REMOVING OUTER FUSE CLIP ASSEMBLY

The new Type EJ-2 Ribbon Element Fuse contains current responsive elements surrounded by a granular quartz filler enclosed in a new improved fuse tube so that it is capable of interrupting higher currents than the old fuse. Consequently, the new Type EJ-2 Ribbon Element Fuse contains in a single tube all the ratings formerly requiring a double tube. This size comparison is shown in Fig. 1.

Type EJ-2 Ribbon Element Fuse and the old fuse can be seen in Table I which applies to all voltage ratings.

The new Type EJ-2 Ribbon Element Fuse is so designed that the standard fittings used for Type EK-3D and Type EK-3DD Fuse Disconnecting Switches are interchangeable between the new and old fuses.

single size D tube replaces an old Type EJ-2 Fuse in a size DD tube, the outer fuse clip assembly is not necessary and should be removed. This is easily accomplished by removing the two nuts (1) holding the fuse guide to the studs as shown in Fig. 2. The fuse guide (2) and sleeves (3) are now loose and can be slipped off. Guide studs (4) can next be unscrewed from the adapter and the outer clip assembly can be completely removed.

A further comparison between the new

When a new ribbon element fuse in a

Fig. 1 (8020751)

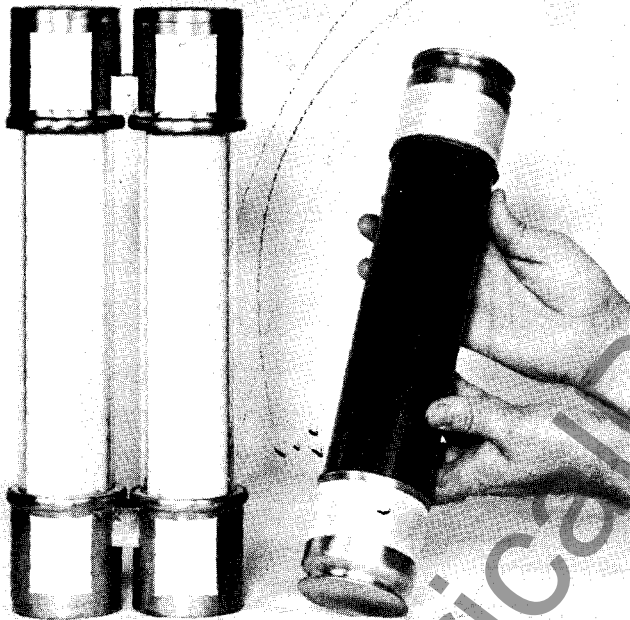
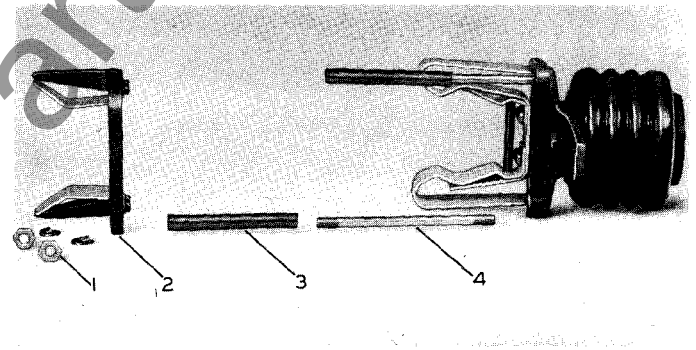


Fig. 2 (8021830)



- 1. Nut
- 2. Fuse Guide
- 3. Sleeve
- 4. Guide Studs

Fig. 2 Order of Disassembly of Fuse Clip Assembly

Fig. 1 A Comparison Between the New EJ-2 Ribbon Element Fuse and the EJ-2 Wire Element Fuse that it Supersedes

INSTRUCTIONS FOR PROCEDURE WHEN OUTER FUSE CLIP ASSEMBLY CANNOT BE REMOVED

When a new ribbon element fuse having a higher rating in a single tube replaces a fuse that formerly required a double tube, it may be inconvenient to immediately remove the outer fuse clip assembly. The fuse operating eye that attaches to the top

of the fuse will not pass through this outer clip and so the fuse disconnecting switch cannot then be closed. Under these conditions an immediate temporary expediency may be used or, time permitting, a new operating eye may be obtained in advance

that will pass through this outer clip.

The temporary expediency of pushing the fuse in with the end of the operating stick may be used until the power can be removed in order to remove the outer clip

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and replace the operating eye. This procedure is illustrated in the sequence of Photographs Figs. 3, 4, and 5. Fig. 3 shows the fuse gripped by the fuse tongs with the hinge fitting being engaged with the hinge support. The tongs are then removed and the end of the hook stick is used to completely close the fuse switch, Fig. 4. To remove the fuse when the operating eye is not present, the fuse is gripped by the fuse tongs, Fig. 5, and removed by a method

similar to that used in removing a fuse from regular clip supports.

If there is sufficient time to acquire a new operating eye, 277B887, this will prove a much more satisfactory method of operating the disconnecting switch without removing the outer clip, since the new operating eye will conveniently pass through the outer clip and still allow the hook stick to become engaged in the eye. Fig. 6

shows the fuse and operating eye passing through the outer clips, while Fig. 7 shows the combination in the completely closed position.

The new operating eye is shown before attaching to the fuse in Fig. 8 and after attaching to the fuse in Fig. 9.

With either method used, the outer fuse clip assembly should be removed at the earliest opportunity.

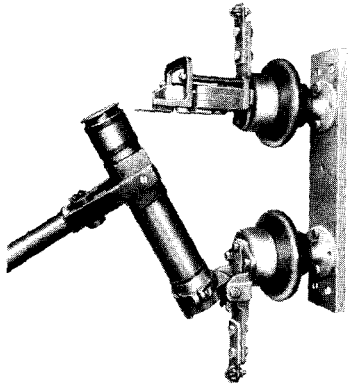


Fig. 3 Push In With Jaws

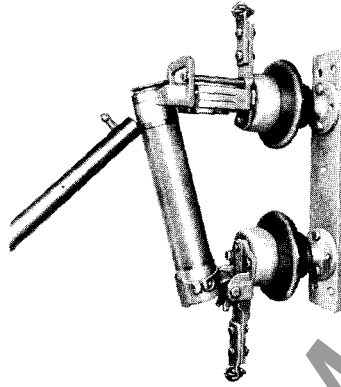


Fig. 4 Push In With Stick

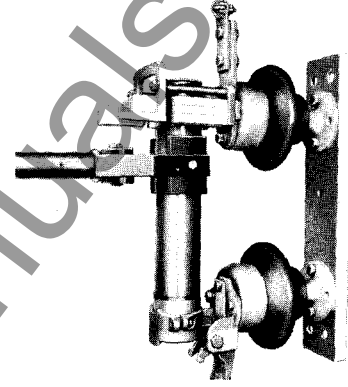


Fig. 5 Torque Out With Jaws

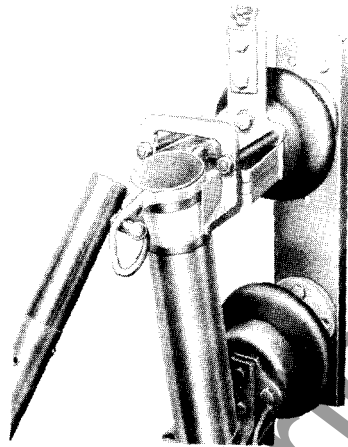


Fig. 6 Push In With Stick and Eye

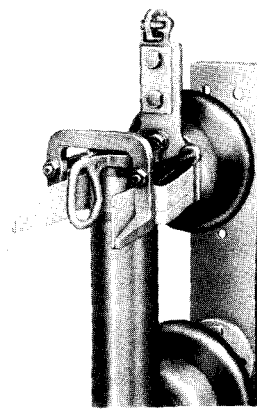


Fig. 7 Passes Outer Clip

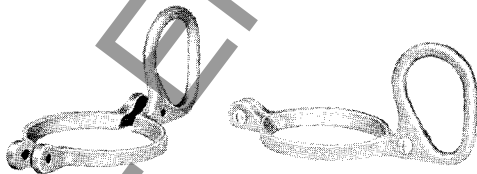


Fig. 8 Operating Eyes

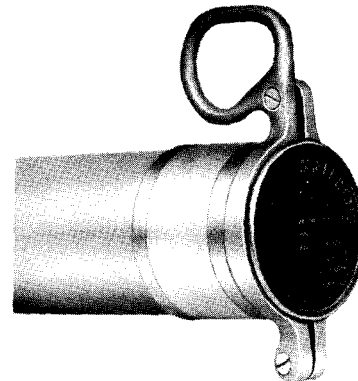


Fig. 9 Fuse with Eye Assembled

Fig. 3 (8022519)
Fig. 4 (8022516)

Fig. 5 (8022517)
Fig. 6 (8022520)

Fig. 7 (8022518)
Fig. 8 (8022580)

Fig. 9 (8022521)

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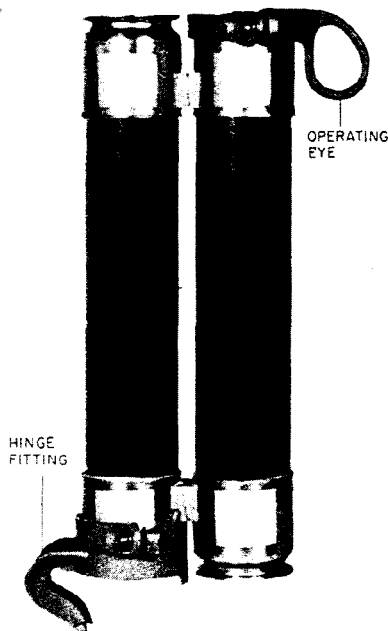


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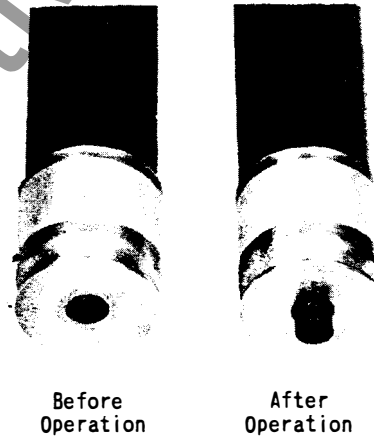


Fig. 3 Indicating Targets of Size D Fuse Units

Fig. 3 (8021290)

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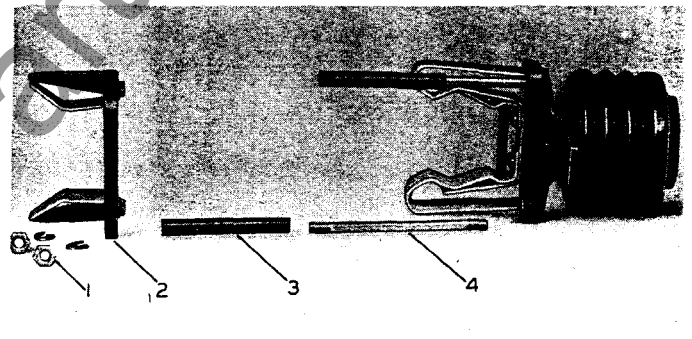
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Fig. 2 (8021830)



- 1. Nut
- 2. Fuse Guide
- 3. Sleeve
- 4. Guide Studs

Fig. 2 Order of Disassembly of Fuse Clip Assembly

TABLE I			
Superseded Fuse		New Ribbon Element Fuse	
Size	Current Design	Current Design	Size
D	4D	2R	D
D	6D	3R	D
DD	1DD	4R	D
DD	3DD	6R	D
DD	5DD	9R	D
DD	7DD	12R	D
2 of 5 DD	9DD	18R	DD
2 of 7 DD	11DD	24R	DD

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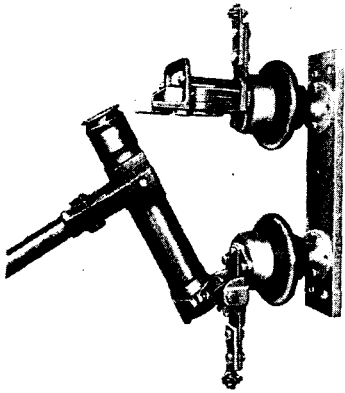


Fig. 3 Push In With Jaws

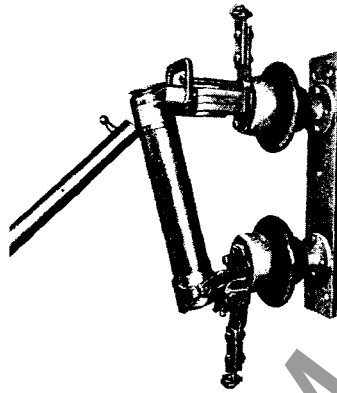


Fig. 4 Push In With Stick

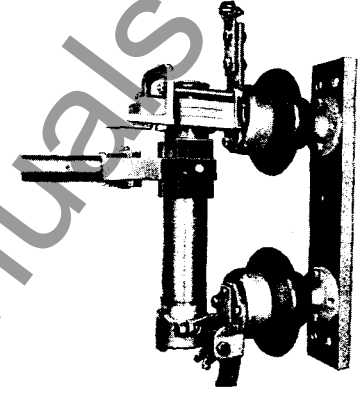


Fig. 5 Torque Out With Jaws

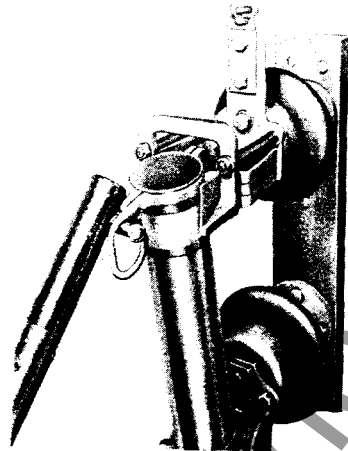


Fig. 6 Push In With Stick and Eye

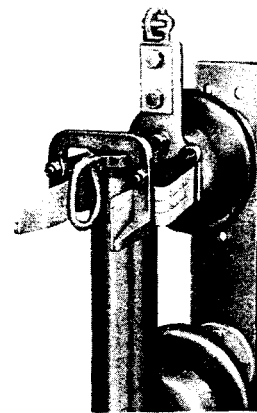


Fig. 7 Passes Outer Clip

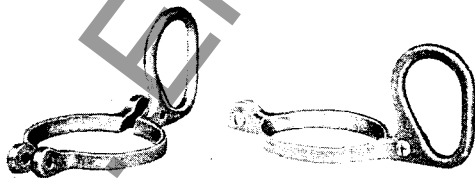


Fig. 8 Operating Eyes

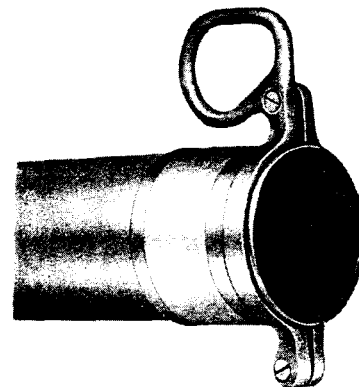


Fig. 9 Fuse with Eye Assembled

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